ASARCO

EAST HELENA PLANT

M A SHARP
MANAGER

November 11, 1987

Mr. Scott Brown
Remedial Project Manager
U.S. Environmental Protection Agency
Federal Building - Drawer 10096
301 South Park
Helena, Montana 59626

RE: ASARCO, Inc. - East Helena

Dear Scott,

Attached please find the ASARCO East Helena response/errata documents which reflect modifications to the Comprehensive RI/FS Work Plan dated September, 1987. These documents contain responses to both the comments recently received by ASARCO from Lester D. Sprenger, EPA Field Quality Assurance Officer, dated September 9, 1987 and those set of EPA comments dated October 29, 1987.

The responses have been formulated into an errata document which should be incorporated as an attachment to the Work Plan. Additional materials that accompany this document that relate to specific comments include:

1. SOP(s) for onsite and East Helena surface soils sampling

2. SOP for fish sampling

3. FOP for soil core sampling in Wilson Ditch

4. QAPP(s) for sampling and preservation of organic parameters.

We anticipate that these responses will satisfy your concerns over remaining technical issues and look forward to EPA's unconditional acceptance of the Work Plan.

Sincerely,

Jon C Nickel

Jon Nickel
Industrial Quality Manager

JN:ls
Enclosures

c: D. Rogness - Solid Hazardous Waste Bureau
D. Bunte - CH2M Hill - Helena

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ASARCO Incorporated, P.O. Box G, East Helena, MT 59635
(406) 227-7100, Telex 31-3120

ASARCO, INC.
EAST HELENA, MONTANA

COMPREHENSIVE RI/FS WORK PLAN RESPONSES AND ERRATA SHEET
ADDRESSING EPA COMMENTS DATED OCTOBER 29, 1987

November 11, 1987

To be superseded

Comment No.	Response
1.	Comment noted. An "*" should be added to anions and field parameters for the special analysis list.
2.	A sample of the actual bentonite to be used to plug the ASARCO well will be sent to the ASARCO Salt Lake City, Utah, laboratory for analysis of metals content.
3.	At the time of the writing of the Work Plan, the statement was correct. No arsenic had been observed in private wells in East Helena, which is the subject on page 3-17. The Hulst wells are not in the city limits of East Helena and are not downgradient from the ASARCO smelter. However, as the comment states, groundwater samples from Hulst wells have shown elevated arsenic concentrations. The data from the St. Clair well is recent data and post-dated the writing of the statement.
4.	Recent analysis of EH-50 was not available at the time of writing. Also, it should be noted that the analysis reference was not collected by usual methods as part of the scheduled sampling program. The sample was collected as a check sample during aquifer test pumping.
✓ 5.	A soil core and backhoe pit sample analytical program will be developed jointly by EPA and ASARCO. The program will include selection of samples for the full set of elements. We are hopeful that these samples will be analyzed by the EPA contract laboratory.
6.	The reference on page 4-10 should read "(U.S. EPA, 1987)".
✓ 7.	Soil sample site locations shown on Figure 4-2 are preliminary and were adjusted after examination of site suitability in the field. Scheduled soil drill hole locations and scheduled surface soil programs will be coordinated as stated in the text.
8.	A total of 24 surface soil sites will be sampled including four sites located in parks and playgrounds.

Comment No.	Response
9.	The Wilson Ditch sample increments will be the same as those of the Soils RI Phase I (EPA, 1987); 0-4 inches, 4-8 inches, 8-15 inches and 15-30 inches. Soil samples will be collected using a small diameter hand soil core auger, if possible. A soil core SOP addendum accompanies this response/errata document. However, field examination shows rocks and cobbles are common in the ditch and soil cores may not be possible. If cobbles prohibit soil core drilling, samples will be collected from a test pit excavation as described in Section 4.1.1. QA procedures used in the Wilson Ditch program will be the same as used for surface soils sampling program described in Section 4.1.2. QAPP Addendums are in Appendix 2 of the Work Plan. The full list of enriched elements will be analyzed for all samples collected (see response No. 5). The sample sites listed on page 4-25, paragraph 3, first sentence, should be labelled "WD" rather than "DH".
10.	Site labels WD-3 and WD-4 shown on Figure 4-4 should be reversed.
11.	The location of Helena Valley cattle herds have been confirmed through a site reconnaissance of the Helena Valley.
12.	Fish samples will be frozen prior to shipment.
13.	A U.S. EPA Trace Metals In Fish Standard will be used for blind field standards.
14.	The parameter list will be as discussed in Comment No. 5.
15.	Comment understood. The EA will consider surface water.
16.	As described in the interim guidelines for feasibility studies under the provisions of SARA, the FS and RI are interactive processes. An initial screening of potential remedial actions is to be performed early as a part of this process and a preliminary FS report is to be submitted. It is logical that treatability testing should be performed after this initial preliminary screening so that appropriate treatability testing procedures can be developed. Application of treatability tests would therefore be more efficient and focus on promising remedial action alternatives.

Comment No.	Response
17.	As agreed upon by ASARCO and EPA, an Endangerment Assessment report will be added to the reports listed on page 10-1. The endangerment assessment report will address each major unit.
18.	The final draft of the EPA Soil, Vegetation and Livestock RI report should be dated August 1986, not 1987. The final RI report for the EPA study should be dated May 1987, not July.
19.	Paragraph 2 under Decontamination - Backhoe is out of place. The paragraph should follow the paragraph under Soil Coring Devices on the previous page. It was intended this paragraph refer to sampling devices including bailers, soil piston samplers and soil coring devices. The paragraph is not applicable to backhoe or drill rig decontamination.
20.	QA procedures used for backhoe pits will be the same as used for the surface soils sampling program described in Section 4.1.2. QAPP Addendums are in Appendix 2 of the Work Plan.
21.	The fish sampling procedure is described in the Work Plan text on pages 4-56 and 4-57. As described on page 4-56, the field procedure parallels the EPA SOP A-4 (EPA, July 1986) and is essentially the same. All information required by the SOP request is already in the text. However, a redundant SOP for fish sampling accompanies this document as an addendum to the work plan.
22.	SOP for Onsite and East Helena surface soil sampling are included as addendums, and accompanying this Response/Errata sheet.

RESPONSES AND ERRATA ADDRESSING COMMENTS
IN THE MEMORANDUM FROM LESTER D. SPRENGER TO SCOTT BROWN
RECEIVED BY ASARCO, INC. ON NOVEMBER 6, 1987

Comment No.	Response
1.	The sampling and preservation procedures described in Appendix 1-F FOP are applicable to water samples and follow EPA, 40 CFR 136.3 (7/1/85 ed.). Guidelines establishing test procedures for analysis of pollutants are referenced in the Work Plan. An addendum to Appendix 1-F for collection and preservation of base/neutrals and acids is attached. Also enclosed is an addendum for sampling and preservation of soil samples to be analyzed for organic parameters. Although soil sampling for organic analysis is not scheduled as part of the Comprehensive RI/FS work, these procedures would be applicable if soil samples should be collected. Procedures are taken from Test Methods for Evaluating Solid Waste, (U.S. EPA SW 846, 1985).
2.	A cross-contamination blank consists of a kimwipe of decontaminated sampling instruments or equipment and will assess the possibility of cross-contamination from equipment. A kimwipe bottle blank consists of a kimwipe of an unused bottle and is intended to assess the possibility of container or kimwipe contamination.
3.	As described in Item 19, decontamination procedures using acetone is intended for small sampling devices. Only small amounts of acetone are used and disposal is not a problem as the acetone used evaporates in a short time. Ground disposal does not occur.
4.	A fish sampling SOP accompanies this article as an addendum. It has been modified to address the comments on fish size, preservation and sample number.

MDI

ASARCO EAST HELENA RESIDENTIAL SOIL SAMPLING

STANDARD OPERATING PROCEDURE

A. For selecting soil sample locations

1. If sample is a front and back yard composite, start in the front yard. Estimate the approximate center of the yard when facing the house, move one and one-half meters from the curb (or the street edge) toward the house. Place the $\emptyset.7m^2$ rectangle here. If it is not possible to take a sample at the center of the yard, while facing the home, move one meter to the right of the obstruction and proceed. If there is an obstruction one meter from the street edge, move an additional one meter towards the house.

2. For the back yard, repeat the above steps except use the alley instead of the street. The front and back yards constitute one sample. If there is no backyard, then the soil sample should be obtained in whatever open space is available, but at least six meters from painted surfaces.

3. If sampling a playground or park, draw an imaginary line to the opposite diagonal corner of the playground or lot. Along this line every ten meters take samples in the same manner as prescribed in the soil collection description. Follow the same procedures for the other two corners, making sure to take a sample in the center where the lines intersect.

4. If sampling a side yard, estimate the approximate center of the side of the house. Place the $\emptyset.7m^2$ rectangle 1/2 meter from the foundation of the house.

B. For collecting soil samples

1. Place the $\emptyset.7m^2$ rectangle on the sample area.

2. Insert acid washed acetate liner in soil probe. Acid wash of liners and caps is as follows:
   a) tap water rinse
   b) dilute (10%) HCL rinse
   c) distilled water rinse
   d) air dry

MSI Detoxification Incorporated
P.O. Box 6446 • 100 Erik Drive • Bozeman, Montana 59715 • (406) 586-4766

3. Insert soil probe (approximately 2 inches), consecutively, in the four corners of the rectangle.

4. When collecting a front and back yard composite sample, you may have to insert a second liner in the probe to accomodate the back yard sample.

5. Sampling the four corners in a side yard will not provide enough sample material. Hence, immediately adjacent to each sample hole at the four corners, a second hole will be punched.

6. Remove acetate liner and cap both ends. Store the acetate liner upright.

7. Decontaminate the equipment by placing the zero contamination tube in a tap water bath and cleaning with a test tube brush. Rinse with distilled water. Dry outside with paper towels.

10. Duplicates. After obtaining cores, rotate the $\emptyset.7m^2$ rectangle 90° and extract duplicate cores. In the lab, these duplicate cores will be composited with the originals and split. Duplicates will be taken at sites chosen by random number generation.

11. Cross-contamination blanks. These will consist of two types. One type will be a kimwipe check of the zero contamination tube. The second type will be a kimwipe check of the acetate liner.

12. In the lab, remove soil cores from each acetate liner with the plunger.

13. Dissect the sod layer with a disposable plastic knife. The sod layer should be removed immediately where the dense roots end. All soil should be removed from the root zone for compositing.

14. After removing the sod layer from the core, measure one inch from the top of the soil core and composite these in a sample jar.

15. Archive the sod layer and discard the rest of the soil.

16. Package and ship samples according to SOP for packaging and shipping.

SOP FISH SAMPLING

MDFWP Personnel and Assistants
Responsibility with DCO Direction

1. Fish will be captured through electroshocking. Personnel of the Montana Department of Fish, Wildlife and Parks will shock fish in shallow water at the collection area. The safe operation of all electroshocking equipment is the responsibility of MDFWP personnel.

2. Using dip nets, MDFWP personnel will collect all anesthetized fish and place them directly into a large, well aerated holding tank. To reduce fish mortality, sample fish will be selected immediately and all other fish will be returned to the water.

3. Five fish of each species sampled (see pages 4-52 and 4-55) will be selected from each of the collection areas (see Figures 4-7 and 4-8). Older and larger fish exceeding 150 mm will be selected, if possible. Fish will always be handled with surgeon's gloves.

4. Each fish will be weighed to the nearest gram (gm) and measured for maximum total length to the nearest millimeter (mm).

5. The five fish of each species (1 fish per sample unit) will be placed in a large zip-lock polybag.

6. Also placed in this large polybag will be a small zip-lock polybag containing the properly completed EPA sample tag.

7. Each sample will be sealed with a completed custody seal and placed into a large cooler containing a layer of vermiculite in the bottom.

8. Blue ice will be used to keep samples cool.

9. Blind field standards obtained from EPA will be added to coolers using comparable packaging, sample tags and sample seals.

10. Before shipping, fish will be frozen solid in a large freezer. The freezer used will be sealed using chain-of-custody seals to ensure security is maintained.

11. Frozen samples will be shipped to the ASARCO Salt Lake City laboratory for analysis. Standard packaging, labeling and shipping procedures will then be followed as described in the Fish Sampling QAPP.

HYDROMETRICS HELENA, MONTANA

FIELD OPERATING PROCEDURE
SOIL SAMPLE COLLECTION USING A HAND OPERATED SOIL CORE AUGER
(HFOP-10-11/87)

I. Equipment

- Soil core auger
- Containers - 8 ounce I-Chem glass bottle with teflon lid
- Disposable clear plastic sheeting

II. Sample Procedure

1. Follow appropriate decontamination procedures as per the ASARCO East Helena QAPP prior to sample collection at each site.
2. Advance soil core by turning drive handle clockwise.
3. Extrude core using appropriate extruder devices. Place sampled soil on clean plastic sheeting for compositing.
4. Composite the samples in the following increments:

   0 to 4 inches
   4 to 8 inches
   8 to 15 inches
   15 to 30 inches

   Use new space or additional clean plastic sheet for sample composition between increments to avoid cross-contamination.
5. Decontaminate soil core and associated equipment between each sample increment.
6. Place each composite sample into the glass containers as the incremental samples are collected.
7. The composite sample is labelled and shipped in accordance with packaging and shipping procedures (HFOP-4-8/84).

HYDROMETRICS HELENA, MT

FIELD OPERATING PROCEDURE

SAMPLING AND PRESERVATION OF ORGANIC PARAMETERS

(HFOP-32-11/87)

WATER AND WASTEWATER

Because organic analyses require sophisticated laboratory equipment, all samples shall be transported to an approved laboratory for analysis. Normally, sample containers shall be topped off to exclude air, packed in ice and shipped to the laboratory. Analysis of samples shall be initiated immediately upon arrival at the laboratory. Samples shall be contained in glass bottles with teflon-lined lids. Routine organics should be sampled and preserved as follows:

Parameter	Volume Requirement (m/l)	Container	Preservative	Holding Time
BOD	1000	Plastic or glass	Cool, 4°C	48 hrs.
COD	50	Plastic or glass	Cool, 4°C H_2SO_4 to pH <2	28 days
Oil & Grease	1000	Glass	Cool, 4°C H_2SO_4 to ph <2	28 days
Organic Carbon	25	Plastic or glass	Cool, 4°C H_2SO_4 or HCL to pH <2	28 days
Phenol	500	Glass with teflon-lined lid	Cool, 4°C 0.008% $Na_2S_2O_3$*	7 days until extraction; 40 days after extraction
Chorinated Hydrocarbons	1000	Glass with teflon-lined lid	Cool, 4°C	7 days until extraction; 40 days after extraction
Pesticides	1000	Glass with teflon-lined lid	Cool, 4°C	7 days until extraction; 40 days after extraction

HFOP-32-11/87, continued

Parameter	Volume Requirement (m/l)	Container	Preservative	Holding Time
Polynuclear Aromatic Hydrocarbons	1000	Glass with teflon-lined lid	Cool, 4°C	7 days until extraction; 40 days after extraction
Purgeable Hydrocarbons	1000	Glass with teflon-lined lid	Cool, 4°C 0.008% $Na_2S_2O_3$*, HCL to pH2	14 days
Base/Neutral and Acids	1000	Glass with teflon-lined lid	Cool, 4°C 0.008% $Na_2S_2O_3$	7 days until extraction; 40 days after extraction

* Used only in the presence of residual chlorine.

References:

EPA, 1985, 40 CFR 136.3 (7-1-85 Ed.)

HYDROMETRICS HELENA, MT

FIELD OPERATING PROCEDURE

SAMPLING AND PRESERVATION OF ORGANIC PARAMETERS

(HFOP-34-11/87)

SOLID WASTE

Because organic analyses require sophisticated laboratory equipment, all samples shall be transported to an approved laboratory for analysis. Normally, sample containers shall be topped off to exclude air, packed in ice and shipped to the laboratory. Analysis of samples shall be initiated immediately upon arrival at the laboratory. Samples shall be contained in glass bottles with teflon-lined lids. Routine organics should be sampled and preserved as follows:

Parameter	Volume Requirement (m/l)	Container	Preservative	Holding Time
Halogenated Volatile Organics Method 8010	25 ml	Glass	Cool with ice $Na_2S_2O_3$*	14 days (including analysis)
Nonhalogenated Volatile Organics Method 8015	25 ml	Glass	Iced $Na_2S_2O_3$*	14 days (inluding analysis)
Aromatic Volatile Organic Method 8020	25 ml	Glass	Iced $Na_2S_2O_3$* HCl pH <2	14 days (including analysis)
Acrolein Acrylonitrile Acetonitrile Method 8030	25 ml	Glass	Iced $Na_2S_2O_3$*	14 days (including analysis)
Phenols Method 8040	None Specified	Glass	Iced $Na_2S_2O_3$* H_2SO_4 pH <2	7 days until extraction; 30 days for analysis
Phthalate Esters Method 8060	None	Glass	Iced; adjust pH to 6-8 with NaOH or H_2SO_4	24 hours without preservatives until extraction; 7 days with preservatives

HFOP-34-11/87, continued

Parameter	Volume Requirement (m/l)	Container	Preservative	Holding Time
Organochlorine Pesticides and PCBs Method 8080	None Specified	Glass with teflon lids	Iced; adjust pH to 6-8 with NaOH or H_2SO_4	24 hours without preservatives; 7 days until extraction with preservatives; 30 days for analysis
Nitroaromatic and cyclic ketones Method 8090	None Specified	Glass with teflon lids	Iced; adjust pH to 6-8 with NaOH or H_2SO_4	24 hours without preservatives; 7 days until extraction with preservatives; 30 days for analysis
Polynuclear Aromatic Hydrocarbons Method 8100	None Specified	Glass	Iced; adjust pH to 6-8 with NaOH or H_2SO_4	24 hours without preservatives; 7 days until extraction with preservatives; 30 days for analysis
Chlorinated Hydrocarbons Method 8120	None Specified	Glass	Iced; adjust pH to 6-8 with NaOH or H_2SO_4	24 hours without preservatives; 7 days until extraction with preservatives; 30 days for analysis
Organophosphorus Pesticides Method 8140	None Specified	Glass	Iced; adjust pH to 6-8 with NaOh or H_2SO_4	24 hours without preservatives; 7 days until extraction with preservatives; 30 days for analysis
Chlorinated Herbicides Method 8150	None Specified	Glass	Cool to 4°C	7 days until extraction; 30 days after extraction
GC/MS Method for Volatile Organics Method 8240	None Specified	Glass with teflon lined lids	Iced; protect from light	None specified Assume 24 hours without preservatives; 7 days until extraction with preservatives; 30 days for analysis

HFOP-34-11/87, continued

Parameter	Volume Requirement (m/l)	Container	Preservative	Holding Time
GC/MS Method for Semi-Volatile Organics Capillary Column Technique Method 8270	None Specified	Glass with teflon lids	Cool to 4°C	14 days until extraction; 40 days after extrction
Polynuclear Aromatic Hydrocarbons Method 8310	None Specified	Glass	Iced	24 hours without preservatives; 7 days until extraction with preservatives; 30 days for analysis

* Used only in the presence of residual chlorine.

Reference: Test Methods for Evaluating Solid Waste SW-846, US EPA (1985)

ASARCO

EAST HELENA PLANT

M A SHARP
MANAGER

November 11, 1987

Mr. Scott Brown
Remedial Project Manager
U.S. Environmental Protection Agency
Federal Building - Drawer 10096
301 South Park
Helena, Montana 59626

RE: ASARCO, Inc. - East Helena
New Administrative Order

Dear Scott,

During the last several weeks, Dave Bunte, Doug Rogness, you and I have met frequently so that we might resolve those technical issues which have an immediate bearing on development of the new Administrative Order. As we agreed in our meeting of October 30, 1987, I promised to provide the group with our understanding of 1) the list of deliverables to include the data summary reports, technical reports and bimonthly progress reports along with each report's delivery date, and 2) revised scheduled time schedules (Figures 11-1 and 11-4) which reflect these delivery dates. These two documents are attached for your review.

You had also requested that ASARCO and Hydrometrics review the analytical groundwater sample results included in your draft letters to the domestic well owners whose wells were sampled as part of the RI/FS activities. Our review shows only one inconsistency; the date for the Jensen A-1 sample in your letter should be 4/28/87 instead of 2/28/87. Also, at your request, a listing of the domestic well owners, their addresses and whether they have tied into the city water system (Gail Street residences only) has been attached.

I'll look forward to hearing from you to discuss any further issues relating to East Helena Superfund Activities.

Sincerely,

Jon Nickel
Industrial Quality Manager

JN:ls
Enclosures

c: D. Rogness - Solid and Hazardous Waste Bureau
D. Bunte - CH2M Hill

DEVELOPMENT OF NEW ADMINISTRATIVE ORDER

LIST OF DELIVERABLES

DATA SUMMARY REPORTS

Tabulation of Validated Process Fluids Sampling Data	April 1, 1988
Tabulation of Validated Slag Pile Sampling Data	April 15, 1988
Tabulation of Validated Soil, Vegetation, Livestock and Fish Sampling Data	May 15, 1988
Tabulation of Validated Ore Storage Sampling Data	June 1, 1988
Tabulation of Validated Groundwater Sampling Data	July 1, 1988
Tabulation of Validated Waterfowl Sampling Data (if sampling is conducted)	August 15, 1988

TECHNICAL REPORTS

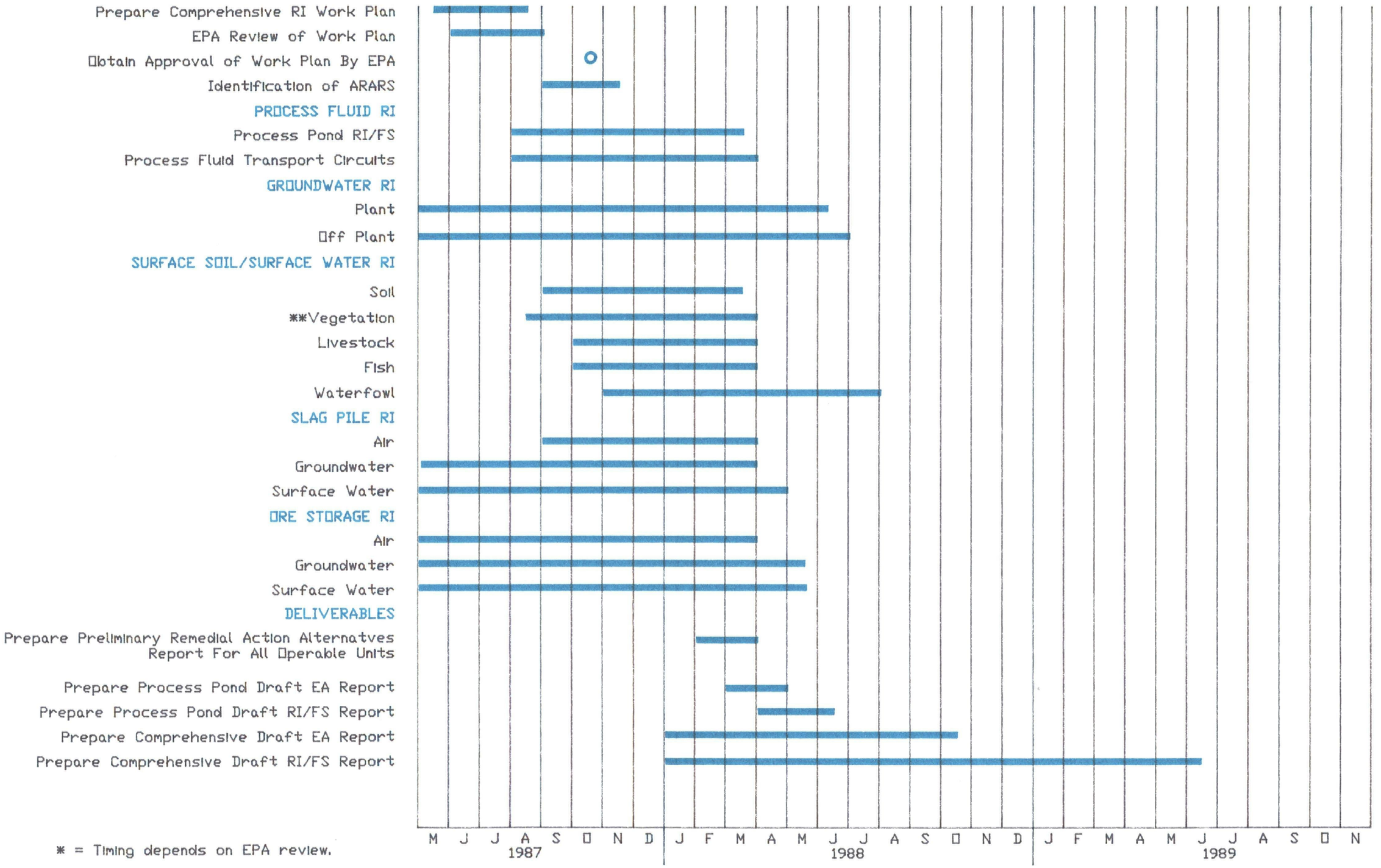
Preliminary Remedial Action Alternative Report for All Operable Units	April 1, 1988
Process Pond Draft EA Report	May 1, 1988
Process Pond Draft RI/FS Report	June 15, 1988
Comprehensive Draft EA Report	October 15, 1988
Comprehensive Draft RI/FS Report	June 15, 1989
Process Pond Final RI/FS Report	30 Days following receipt of EPA's written comments
Comprehensive Final RI/FS Report	30 Days following receipt of EPA's written comments

BIMONTHLY PROGRESS REPORTS

January 1	March 1	May 1
July 1	September 1	November 1

DOMESTIC GROUNDWATER WELLS SAMPLED AS PART OF REMEDIAL INVESTIGATION/FEASIBILITY STUDY ACTIVITIES

Well Owner	Address	East Helena P.O. Box No.	Domestic Well	City Water Supply
D. Duel	2 W. Gail	P.O. Box 968	Yes	No
E. Walter	7 W. Gail	P.O. Box 723	Yes	Undecided
N. Mosier	105 W. Gail	P.O. Box 168	Yes	Eventually
C. Nordstrom	109 W. Gail	P.O. Box 601	Yes	No
R. Lamping	201 W. Gail	P.O. Box 971	Yes	Eventually
C. Larum	203 W. Gail	P.O. Box 444	Yes	Eventually
J. Romasko	301 W. Gail	P.O. Box 219	Yes	11/2/87
N. Vetsch	305 W. Gail	P.O. Box 544	Abandon	Yes
R. Berry	317 W. Gail	P.O. Box 784	Standby	Yes
W. J. Ernst	319 W. Gail	P.O. Box 476	Standby	Yes
A. Jensen	401 W. Gail	P.O. Box 803	Yes	Undecided
J. Manion	405 W. Gail	P.O. Box 234	Abandon	Yes
D. Hoff	409 W. Gail	P.O. Box 411	Standby	11/2/87
W. Helfert	407 E. Porter	P.O. Box J	Yes	N.A.
G. Kammerman	211 N. Thurman	P.O. Box 456	Yes	N.A.
J. Simac		P.O. Box 59	Yes	N.A.
K. R. St.Clair	107 E. Groschell	P.O. Box 696	Yes	N.A.
L. Hulst		P.O. Box 242	Yes	N.A.
D. Hulst		P.O. Box 242	Yes	N.A.
K. Hulst		P.O. Box 611	Yes	N.A.



* = Timing depends on EPA review.

** = Early EPA approval of time critical vegetation work.

Figure 11-1
General RI Time Schedule *

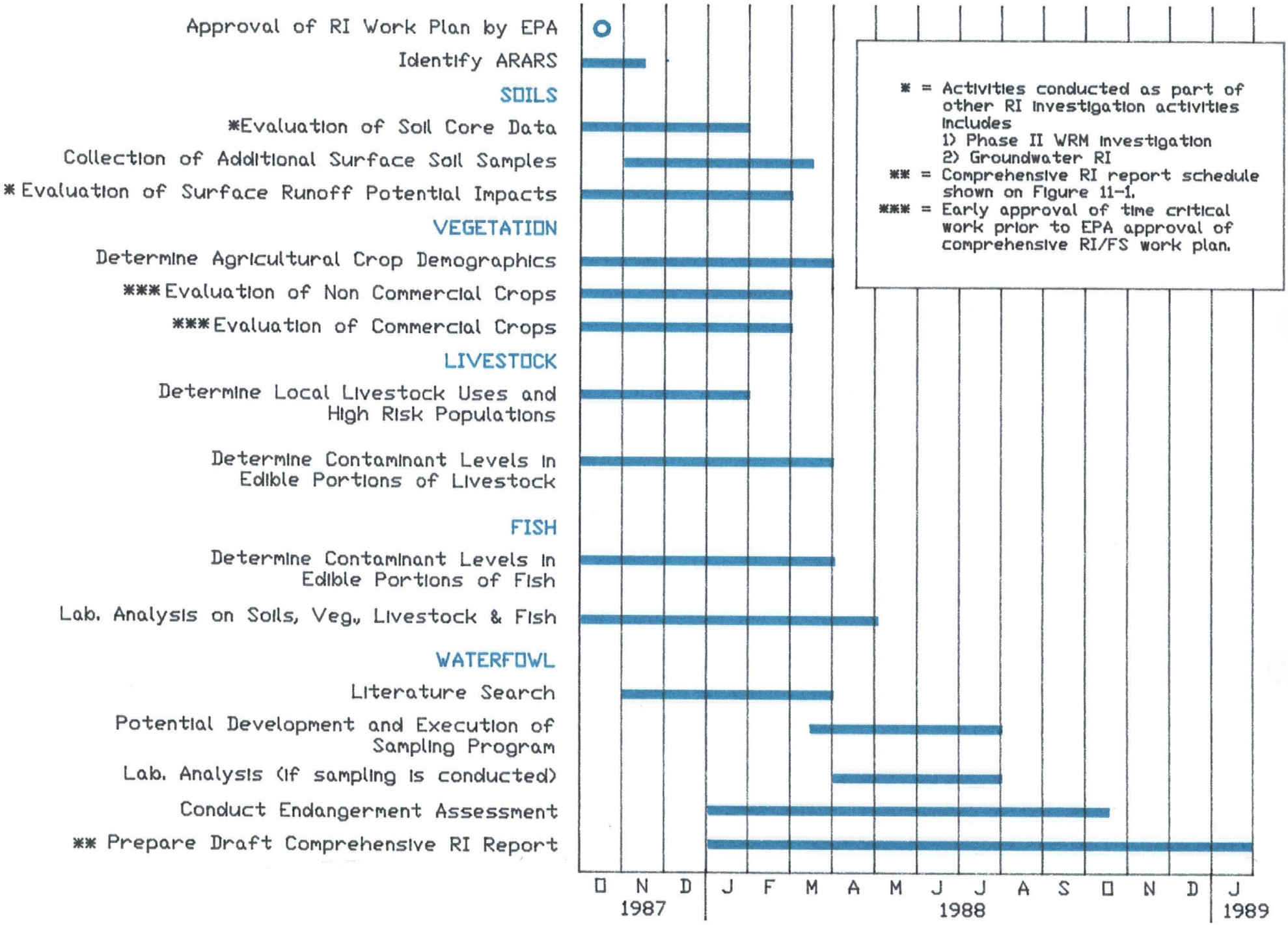


Figure 11-4, Surface Soils/Surface Water RI Time Schedule